# Lake County Ham Radio Journal

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**Another student gets a jump-start on Electronics during the 2010 Youth Classes**

## In This Issue






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www.stonedmonkey.org




**W9WLC**
www.welcars.org

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Chris - N9YH

**Contributors**
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Steve - KB9MWR

# Upcoming Events

## WeLCARS Meetings and Events

**VE Sessions**
April 9 and May 14 - 7PM
Fox Lake Community Center

**Dinner Meetings**
April 16 and May 21 - 7PM
Dino's Den - 88 E. Grand Ave.

**Regular/Project Meetings**
All Other Fridays - 7PM
Fox Lake Community Center

## Hamfests

**AES Superfest**
April 9-10 - Milwaukee, WI
www.aesham.com

**WeLCARS TechFest V**
May 22 - Fox Lake, IL
www.welcars.org

## On the Air

**144 MHz SSB SWOT Net**
Sundays 7PM
144.250 USB

**Informal Net / Radio Tradio**
Sundays 8PM
KB9I Repeater
145.41 (-) PL 107.2

## Other Events

**Lake Co RACES Meeting**
April 5 and May 3 - 7PM
Lake County EOC

**MCWA Meeting**
April 6 and May 4 - 7:30PM
Nunda Township Hall

**McHenry Co RACES Meeting**
April 27 and May 25 - 7PM
McHenry County EOC

## Contest Calendar

**Montana QSO Party**
April 8 7PM - April 10 7PM
1.8 - 432 MHz  Phone, CW, Dig.
www.fvarc.org

**Georgia QSO Party**
April 10 1PM - April 11 7PM
1.8 - 50 MHz  Phone, CW
gqp.contesting.com

**VHF Spring Sprints**
144 Mhz: April 12 7PM - 11PM
222 MHz: April 20 7PM - 11PM
432 MHz: April 28 7PM - 11 PM
902+ Mhz: May 1 6AM - 1PM
50 MHz: May 8 6PM - 10PM

**Ontario QSO Party**
April 17 1PM - April 18 1PM
1.8 - 144 MHz  Phone, CW
cco.ve3xd.com/oqp

**Nebraska QSO Party**
April 24 12PM - April 25 12PM
1.8 - 144 MHz  Phone, CW, Dig.
www.hdxa.net

**Indiana QSO Party**
May 1 11AM - 11PM
1.8 - 28 MHz  Phone, CW
www.hdxcc.org/inqp

**New England QSO Party**
May 1 3PM - May 2 7PM
3,5 - 28 MHz  Phone, CW, Dig.
www.neqp.org

**Nevada QSO Party**
May 8 12PM - May 9 12PM
1.8 - 50 MHz  Phone, CW, Dig.
nv.arrl.org/NQP

**CQ WPX CW**
May 28 7PM - May 30 7PM
3,5 - 28 MHz  CW
www.cqwpx.com

# 2010 January VHF Sweepstakes

Chris Burke - N9YH, WeLCARS Secretary and Treasurer

Roving Monkeys filled this empty parking lot

I don't think there are any monkeys native to the frozen tundra... Penguins, sure. Polar bears, yup. Heck, we'll even give you the moose, but the fact of the matter is "Stoned Penguins" as a name for an Amateur radio contest club is just plain silly. So rather than freeze our babboons off, we decided to forgo the usual Pioneer Tree Farm setup and instead travel as a group of Rovers.

Quite a few stations made it down to the "4 Corners" area of Elk Grove Village where grid squares EN51, EN52, EN61, and EN62 all meet. Most of the crew took FM-only rigs, though Tom K9TMS had SSB capability with his Kenwood TS-2000. We expected to spend a couple hours working each other and maybe a couple other stations. We were all surprised by the number of stations on for the contest. There were several times where pileups occurred on 146.49 and 146.55 MHz. A lot of the activity seemed to be generated by a lot of casual operators wanting to hand out points to contesters. Many stations commented on getting on for a couple hours to hand out some points. I'm sure the activity is in no small part because of the prime location - the intersection of 4 grid squares in a major metropolitan area means you'll be visited by at least a few rovers during the contest, which means that fixed station contesters will surely point their beams in your direction as well.

The activity on 146.49 and 146.55 MHz was sometimes frantic and fast paced and sometimes sounded like a Sweepstakes pileup. Interestingly there wasn't much activity off of those frequencies and the calling frequencies on the other bands. At one point when 146.55 and 146.49 were both quite busy I gave calling CQ on 146.58 a go and worked exactly nobody. It was unfortunate that more operators didn't spread out a little so more stations could have worked each other. I really do have to hand it to the contesters in the Elk Grove area - you guys have done a fantastic job getting the word out to get that many casual FM simplex operators on the air.

KC9NJZ making some antenna adjustments

KC9PJN operating as we drove home

10-year-old Jonathan KC9PJN operated his own solo contest effort for the first time. Because Jonathan is a few years from driving his own Rover, we used the "Family Rule" to operate two stations from the same Rover vehicle. Jonathan operated completely on his own, doing all his logging on paper and did an excellent job of checking for duplicates, giving and asking for fills, and operating courteously in what was sometimes a very hectic environment. Jonathan did so well that I've started contemplating a serious two operator Rover effort with Jonathan on FM and me on SSB for future contests.


Other highlights from the contest were Dave KC9PWF and his family making the Rover trip and Georgette KA9VPG making contacts on the 223.5 MHz.


Unfortunately, we all had other commitments that meant closing down shop at about 5PM and heading back home. I worked N9UM later in the weekend while running an errand, but most of the excitement was had during Saturday afternoon. The airwaves back home up in Lake County just weren't as busy. Still, it was definitely a fun ride and it's easy to see why the Rover categories have such an appeal. Jonathan and I are definitely looking to the next group Rover outing, likely for the August UHF contest but maybe an entry in the CQ VHF contest is in the cards... Ah, so many contests, so little time!

## Changes to the Journal - Now We're More Regular!

The perceptive among you may have noticed a couple of changes to our little rag. The most noticable being that our event calendar page now lists dates for two months' worth of events rather than just one. The long and short of it is we've given up on any pretense of publishing monthly, since that never really happened anyway, and we're officially moving to a bi-monthly publishing schedule. The cool thing about that is an official bi-monthly schedule fits in nicely with our activities, so we'll always have plenty of event coverage. For example, our next issue due out around June 1st will have TechFest as well as details on our plans for June VHF and Field Day, not to mention a list of all the things Tom K9TMS shot at while making his "spud gun" (see our Field Day story in this issue for details on that one).

We've got some other tricks up our collective sleeves for upcoming issues as well, like including public service events in our event calendar along with the contests and local club meetings. We hope you continue to enjoy the Journal, and if you have any suggestions or ideas let us know!

# VHF Contesting with a Rubber Duck

Tom Staley - K9TMS, Stoned Money VHF ARC President

Early in December the Training Coordinator for the company I work for asked me to teach a class in San Jose in January, and I agreed without checking the date. As it turned out the week end I was to fly out for the class was the January VHF Contest. So much for having a fun filled contest back here in the “Flat Land!" Always being one to try to make the most out of a crappy situation I decided I would contest on Saturday here with the group and then do a separate effort from Mt. Diablo in the Bay Area on Sunday.

Last time I did this I ran as a Rover. This time I decide that maybe it would be more fun to do QRP rather than Low Power – besides the radios were smaller and lighter. With the airlines I wanted to keep all the equipment in my suitcase and a small Pelican Case.


My original thought was to use my FT817ND and a Dual Band Elk LPA on 2 meters and 432 and a collapsible 6 meter Dipole all mounted on a camera tripod. The 223 station would then be my THF6 with it’s “High Gain” rubber duck and then for 1296 my ICT91A again with a rubber duck. So that meant 5 watts on all bands except 1296 where I had a whopping 1.5 watts!

On final approach into SFO I got a good look at the snow capped top of Mt. Diablo. Wait did I say snow? Snow wasn’t something I had planned on! Not being one to want to quit just because of an itty bit of snow I set out for the mountain top in my wonderful Kia Spectrum rental car (in the words of Wally Schirra, "Where the hell is the 'No' Desk?"). Kia is a Korean word for back hurts like hell.

At about 15 miles out I got my first ground level look at the site – not too bad? Of course when one gets a bit closer the lovely white stuff becomes a bit more apparent. Note that the Red X Marks the spot from where I want to be transmitting.


Dang there was snow up there. I thought I left that back home!

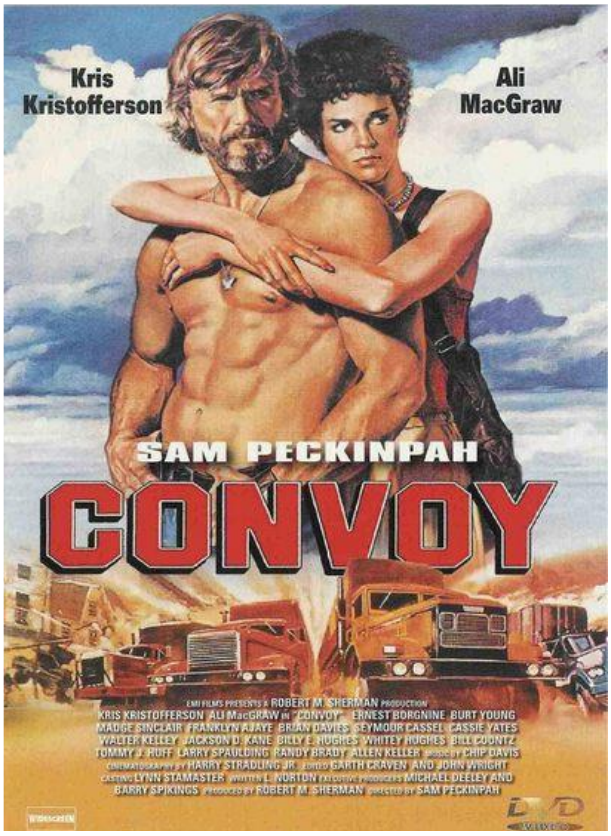
As I crawled my way to the top of the mountain in the Kia I found that things were a bit wet and as I got to the top of the mountain I also found things a bit snow covered but not too horrible. The way to the summit was closed so I would have to suffice with 3600 feet of elevation instead of 3900. What was more depressing was that it was raining and snowing when I got there. There was also a snow ball fight in progress there as well. So with the threat of having to leave fast if the snow became serious as well as not wanting my antennas destroyed by flying snow balls I decided it was time to see just what could be done with two HT's and an FT817 all running with rubber ducky's. Sounds like a waste of time doesn't it? Well for about the first 5 minutes I would have agreed with you. But then all hell broke loose and I wound up in a nice pile-up with me at the bottom of the pile.

One thing about VHF contesting in Six Land, the only frequency to contest on is apparently the national calling frequency. 144.200 was a mess. But I slowly sorted out the QSOs one by one. Slowly but surely I managed to continue to work stations on all 5 bands. The only band I had issues working people with was six. For some reason the FT817 didn't like the KIA on six meters and I had to hold the radio above the roof for six meter contacts all the while ducking the flying snowballs!

So one might ask how many contacts can you work in 3.5 hours on a mountain in rain and snow using two HT's and an FT817 all equipped with rubber duckies?

| Band | # QSO's | Grids |
|---|---|---|
| 50 MHz | 4 | 2 |
| 144 MHz | 24 | 6 |
| 223 MHz | 7 | 4 |
| 432 MHz | 12 | 5 |
| 1296 MHz | 3 | 3 |
| Total Score | 1560 | |

So the bottom line: Did I make contacts? Yup. Did I have fun? Yup. Did the Californians have fun throwing snowballs? Yup! So everyone had a great time! By the way, apparently the fun thing to do if you live in the Bay area and are driving to the top of the mountain to have a snow ball fight is to place snow on the roof and windshield of your car because it looks so cool when you get back down to the bottom of the mountain.




**Oh... This isn't the Rubber Duck he was talking about... I get it now.**

## 2010 Youth Electronics Classes

Joe Serocki - N9IFG, WeLCARS President

More than 40 kids have fulfilled the requirements for the Electricity Merit Badge and will fulfill the requirements for the Electronics Merit Badge on April 8th when we all do "The Project." [Uh, oh... Sounds dangerous. - Ed.] The kids are learning a lot and are able to answer questions about the basics of Electricity, including safety. They have learned to be able to calculate using Ohm's Law and the Power Formula and are really excited to get to work on the project. We will be covering radio, and that might be three sessions. We are working on getting them into WRLR on a Thursday night to be able to see what a broadcast station is all about for the last session, maybe even on the air!

Some of them have already signed up for Ham Cram with Lake County RACES for 5/1, and we intend on making this available to all.

Not a lot of pictures, they are really boring, but the April session will net some real fun! Classes will continue April 8 and 22 at the WeLCARS Worldwide Headquarters. [Just watch those hot soldering irons on April 8... - Ed.]

## AeroComm CL4490-1000 ConnexLink

Our intrepid field reporter Steve KB9MWR has discovered this product from his QTH in the North Woods of Wisconsin. The AeroComm CL4490-1000 is a one watt 900 MHz Frequency Hopping Spread Spectrum (FHSS) RS-232 transceiver. The individual transceivers are available from Mouser Electronics for about $110 each, though we recommend the starter pack that includes 2 transceivers for $225.

The RF module itself can be purchased for about $62. The complete kits described above includ ethe AC4490 module housed in an aluminum case with an internatl switching power supply and the necessary RS-232 to TTL conversion circuit. The antenna connection is a reverse polarity SMA. The CL4490 also inclues four LEDs which indicate DC power, link establishment, receive, and transmit.

AeroComm advertises a maximum throughput of 115.2 kbps, though notes from the TAPR mailing list put the over-the-air baud rate at 78K baud, so hardware flow control is needed to buffer data if you choose a higher interface baud rate.

# WeLCARS / Stoned Money Field Day 2010

Tom Staley - K9TMS, WeLCARS Contest Commandant

So let's do some math first – how many years has it been? Would you believe this is year will be the 4th Annual WeLCARS / Stoned Monkey Field Day Extravaganza? Not bad for a group that wasn't supposed to last 6 months, eh?

For those of you that missed the Field Day Planning meeting the major item on the agenda was deciding on a place for the festivities to be held. Basically the two places considered were the Grant Township site on Molidor Rd. and the WWHQ, aka the Fox Lake Community Center. After a discussion of both sites the A/C and lack of flying fighter bombers won out, so the site for F/D 2010 will be at WWHQ in Fox Lake. I know that there will be those that think that WWHQ is way too noisy a site. If you did not play in the November 2009 Sweeps then you are not aware of how much less noise there is now. Metra made significant improvements to the switches on the tracks behind the site. Apparently this is where most of our past noise was coming from

Currently I would like us to try to do a 4A. Last year we ran as 6A which I think was maybe one or two too many stations. We are currently looking for people willing to over see stations as Station Managers.

| Band | Manager | Tower |
|---|---|---|
| 20/80 | K9HA | Hula 2 |
| 40 | ?????? | Hula 3 |
| 10/15/CW/Digital | ?????? | ?????? |
| 6 | K9TMS | Hula 4 |
| VHF | ??????? | Hula 4 |

As you can see we need to figure out who is doing what first. From there we will then figure out radios, computers and what not. We are also in need of GOTA operators and possibly a Coach. TO qualify for GOTA you need to have acquire your current license class since last Field Day. I believe we have several that qualify so I am not too worried about it.

The main station will be under the call sign W9WLC and the GOTA station will use N9UHF. If we have someone that can bang out 500 CW QSOs that qualifies as a GOTA operator please let me know, we want you. For that matter even if you don't qualify as a GOTA operator but can pound out 500 CW QSOs, let me know anyway.

We are still in the planning stages, here is what I know for equipment. For 20/80 Terry will be using his IC756 and we can either use the 20 meter Ham Stick Beam I have or Keith's 20 meter rotateable dipole. On 80 we will need to get my shortened dipole up in the air. Terry will use Hula 2 as his tower. The other station I know the details on is the 6 meter station. I will be using my IC756 and a single 5 element beam on Hula 4. For 40 we will have my rotatable dipole mounted on Hula 3. Not sure what radio yet or who is running the operation. For GOTA and 10/15 we will most likely use a multiband vertical. Last item on the need list is someone to over see the chili and make sure no one gets over served. [Do you smell that? - Ed.]

We will be doing a different project leading up to F/D this year. After watching the crazies out side waiting for the large metal object to hit them in the head in an attempt to get lines over the light poles I kind of figured a good project would be a bunch of spud guns. So between now and Field Day figure that we will be doing just that. Dan please bring the watch patch and your taping knives!

So if you can help out please let me know. I would love to have everything laid out by the beginning of May so we can concentrate on getting things done.

# Greenhouse Gas Auroral Propagation

Bob Frapples - WD8KHE

Over the years, many of us active in the VHF and above Amateur Radio operations have known some interesting forms of radio wave propagation. These range from tropospheric ducting, sporadic-E, rain scatter, and meteor scatter to auroral enhancements to radio signals. Some of these modes are quite challenging to operate and at the same time can be rewarding in terms of distance. The problem with these forms of enhancement is you can never be sure when they'll appear. Tropo, for example, is dependent on Mother Nature to provide some sort of temperature inversion. Top secret research indicates that this unreliability may be a thing of the past. Military researchers have discovered, purely by accident, unexplained signal enchacements when RF energy is in the presence of greenhouse gasses.

While experimenting with improving signals in the microwave bands military researchers noted several unexplained signal enhancements when their antennas were pointed in various directions. The type of enhancement created which could best be described as a “splattering” type of signal. After due consideration the researchers realized what they were hearing was very similar to auroral propagation, although aurora propagation tends to be a bit more of a “hissy” sounding signal.

After much trial and error, and several billion dollars, the research team was able to narrow down the enhancement to their proximity to agricultural operations. Apparently, gasses released from agricultural sources affects layers in the atmosphere referred to as the P and U layers. When the chemicals $CH_4$, $N_2$, $H_2$, and $CO_2$ combine and are ionized by SHF RF energy an invisible plasma cloud can form close to the surface of the earth in the P - U layer that will reflect SHF RF Radio signals much the same way that Aurora Borealis reflects VHF radio signals.

Because of the increased bandwidth often offered in microwave operations, the military was understandably excited about these developments and quickly worked on what is now known as Focused Auroral Refraction Technology. The technology was nearly abandoned, however, when a FART generator was overpowered and nearly burned down a medium-sized city. "It was horrible," a military spokesman who declined to be identified for our report said. "It was worse than Three Mile Island and Chernobyl put together." Despite that tragic setback, researchers are back on track with FART generators at markedly lower levels.

Much of the research in this field is highly speculative and theoretical but for those of us wanting to advance the "state of the art" in Amateur radio look forward to experiments in the future VHF and above transmitters coupled with large quantities of Guadalupe and Puerto Rican Chili to confirm these findings. Experiments will also be conducted this involving any number of foods involving sausage, bratwurst, and other spiced meats. With so many Amatuers willing to participate in these experiments, the ARRL has named WeLCARS as a club to coordinate efforts to investigate this new form of propogation. According to the letter received from ARRL Headquarters, "WeLCARS is particularily well suited to this task. Not only are members interested in experimentation, we know of few other amateurs as experienced with generating hot air as your club's president."

## Developing Wireless Networks Using OLSR

Steve Lampereur - KB9MWR

Mesh network topology on top of standard 802.11 can make a powerful system. A group of hams in North Texas have been developing firmware using the Optimized Link State Routing (OLSR) Protocol. This is an IP routing protocol which is optimized for mobile ad-hoc networks. You can read more about this groups work at their newly launched website: http://hsmm-mesh.org/

If you are interested in what you see on their website, I highly encourage you to check out a free Ebook titled "Wireless Networking in the Developing World - Second Edition" by Rob Flickenger. If you are like me you'll likely be ordering yourself the printed copy.

## Opinion: 2010 ARRL Illinois Section Manager Election

Chris Burke - N9YH

[At the risk of inviting "you sound like Wayne Green"-type criticism, we present the following Op-Ed piece. This is not an endorsement by the Journal of any one particular candidate, this is one dude's opinion. If you have an opinion, send it in. If it's ham radio related and not obscene, name-calling, or something that advocates lining your hat with tin-foil we'll print it, too. - Ed.]

ARRL members in Illinois will receive their ballot for Section Manager soon. You should be aware that the Section Manager position is an important one. Among other things, we as Amateur Radio operators count on the SM to interact with state officials on our behalf. The Illinois Section has made great strides recently under the leadership of our current SM Tom Ciciora KA9QPN. For the first time that I can remember, Illinois officials are incorporating Amateur Radio into their emergency preparedness plans.

Folks, that's huge. Really huge. I'm not about to suggest that "EmComm" is the pinnacle of Amateur Radio; fact is, many of you aren't very interested in it and that's fine - this hobby encompasses many facets and EmComm is just one of them. But you have to realize that until now the Public Safety community in Illinois hasn't given any consideration to Amateur Radio. I've worked in that industry for the last 12 years, so I've got some first-hand knowledge of that.

In the last year, though, the state's Emergency Management Agency has not only incorporated ham radio into their planning, but the state has also agreed to spend money to buy Amateur Radio equipment, this according to posts made by W9FX on the Society of Midwest Contesters e-mail reflector. That's 0-to-100 in some pretty quick fashion. We've also seen bills recently introducted that would exempt hams from the "anti-texting" law currently on the books. While nobody is suggesting that you text and drive, anybody that can get a bill introducted that exempts our little group of hobbyists from something must have a decent voice in Springfield.

Now, I don't have any kind of special relationship with Tom. I just get the regular e-mails from him that I signed up for at the ARRL website and having once commented on something he said in one of those e-mails I received a response within an hour or two on a weekend. The lines of communication seem pretty open to me. (Full disclosure: Tom and I have since become friends on Facebook.)

I'll be voting for Tom Ciciora in this election and I hope you will, too. But even if you don't agree with me, please make your own informed decision and send your ballot in!